

PULSED FLUID CLEANING AND DRYING APPARATUS AND PROCESS

Abstract of the Disclosure

An apparatus and process are described delivering alternating pulses of fluid and air within either a fully sealed or partially sealed tooling enclave in the direct presence of a constant or variable vacuum source for the purpose of removing loose as well as attached contamination from the part and it's associated internal passageways, as well as internal and external surface areas. The agitation of the debris is created by the displacement of the air or other gases, held under compression by the fluids when released to the vacuum source surrounding, affixed, or presented to the part/area to be cleaned. The fluid/air medium is generated in an alternating method by the use of a rotating pulse generator. The generator receives a constant or alternately a variable rate flow of fluid to be used in the application as well as a constant or alternately variable rate flow of compressed air. Specific port locations within the rotating device transfer to a conduit a specific quantity of fluid followed immediately by a specific charge of the compressed air with each rotation and alignment of the respective ports. Variable speeds of rotation likewise generate either greater or lesser quantities of materials at the selected material pressures. These materials are then transferred within the fluid/air delivery tube which if observed, would be seen as a charge of fluid followed by a charge of air followed by a charge of fluid and so on. The immediate removal of these contaminants is by means of the supplied vacuum source. This minimizes the possibility for the displacement and reintroduction of the contamination to the part being cleaned. After removal, they are filtered for collection along with the fluids which are also removed, as well as separated and filtered for reuse within the process.